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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,191	10/13/2005	Shingo Hishiya	279088US26PCT	2212
22850	7590	10/19/2007		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER PATEL, REEMA	
			ART UNIT 2812	PAPER NUMBER
			NOTIFICATION DATE 10/19/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

**Application No.**

10/553,191

**Applicant(s)**

HISHIYA, SHINGO

**Examiner**

Reema Patel

**Art Unit**

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,7,9 and 12-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,7,9 and 12-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 4 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung et al. (U.S. 2002/0045361 A1) in view of Srinivasan et al. (U.S. 6,306,776 B1).

3. Regarding claims 1 and 14-16, Cheung et al. discloses the following claimed elements:

- A method for processing an organosiloxane film, the method comprising:
  - Loading a target substrate into a reaction chamber ([0045],[0049]);
  - Performing a heat process on the target substrate within the reaction chamber to bake the coating film, wherein the heat process comprises:
    - A temperature setting step of setting an interior of the reaction chamber at a process temperature by heating ([0045],[0050]);
    - A supplying step of supplying a baking gas of dinitrogen oxide into the reaction chamber set at the process temperature, while activating the baking gas by a gas activation section disposed outside the reaction chamber ([0045],[0052]).

4. Yet, Cheung et al. does not disclose the following:

- a) The substrate contains the coating film before loading into the reaction chamber.
- b) The supplying step comprises activating the baking gas by bringing the baking gas into contact with a catalyst and heat energy.

5. Regarding (a), Cheung et al. suggests loading the substrate into the reaction chamber and then depositing the polysiloxane base solution having an organic functional group ([0045]). However, it would have been obvious to one of ordinary skill in the art at the time of the invention to deposit the film onto the substrate before loading into the reaction chamber because selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results. *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946). The applicant has not provided any new or unexpected results nor has stated any criticality for coating the wafer and then loading into the reaction chamber.

6. Regarding (b), Cheung et al. discloses using a microwave applicator to activate the baking gas outside of the reaction chamber ([0052]). However, Srinivasan et al. discloses activating a reactant gas by contact with a heated catalyst (col 3, lines 46-51). Srinivasan et al. discloses the catalyst, which can be tungsten (col 2, lines 15-18), is heated to a temperature within the range of 300-1200°C (col 2, lines 10-14). The advantage of this method of activation is that it does not involve the large apparatus costs associated with chambers using plasma forms of activation. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Cheung et al. with activating the baking gas by contact

with a catalyst and heat energy, as taught by Srinivasan et al., so as to lower capital equipment costs.

7. Regarding claims 2 and 4, Cheung et al. discloses a process temperature in a range from 250 to 400 °C and the baking gas is dinitrogen oxide gas ([0045]).

8. Regarding claim 17, Cheung et al. does not disclose that the reaction chamber is configured to accommodate multiple substrates. However, Srinivasan et al. discloses processing using a wafer boat (14, Fig. 1; col 3, lines 12-15) in which a plurality of target substrates are located at intervals in a vertical direction so as to process a plurality of wafers simultaneously. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to load a plurality of target substrates in a wafer boat, as taught by Srinivasan et al., so as to be able to process a plurality of wafers simultaneously.

9. Claims 7, 9, 12-13, 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung et al. (U.S. 2002/0045361 A1) in view of Srinivasan et al. (U.S. 6,306,776 B1).

10. Regarding claims 7 and 18-20, Cheung et al. discloses the following claimed elements:

- An apparatus for processing an organosiloxane film, by performing a heat process on a target substrate with a coating film formed thereon to bake the coating film, the coating film comprising a polysiloxane base solution having an organic functional group, the apparatus comprising:

- A reaction chamber (10, Fig. 2) configured to accommodate the target substrate ([0049]);
- A temperature adjusting section configured to adjust temperature inside the reaction chamber ([0050]);
- A gas supply section (18, Fig. 2) configured to supply a baking gas of dinitrogen oxide into the reaction chamber ([0049]);
- A gas activation section (28, Fig. 2) disposed outside the reaction chamber and configured to activate the baking gas ([0052]);
- An exhaust section (32, Fig. 2) configured to exhaust gas inside the reaction chamber ([0051]);
- A control section (34, Fig. 2) configured to control the temperature adjusting section to perform said adjust step, control the gas supply section to perform said supply step, control the gas activation section to perform said activate step, and control the exhaust section to perform said exhaust step ([0057]).

11. Cheung et al. does not disclose the gas activation section is configured to activate the baking gas by bringing the gas into contact with a catalyst while supplied with heat energy. Rather, Cheung et al. discloses using a microwave applicator to activate the baking gas outside of the reaction chamber ([0052]). However, Srinivasan et al. discloses a gas activation section (40, Fig. 1) configured to activate a reactant gas by contact with a heated catalyst (col 3, lines 46-51). Srinivasan et al. discloses the catalyst, which can be tungsten (col 2, lines 15-18), is heated to a temperature within

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the range of 300-1200°C (col 2, lines 10-14). The advantage of this method of activation is that it does not involve the large apparatus costs associated with chambers using plasma forms of activation. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Cheung et al. the gas activation section configured to activate the baking gas with a catalyst and heat energy, as taught by Srinivasan et al., so as to lower capital equipment costs.

12. Regarding claim 9, Cheung et al. discloses that the baking gas is dinitrogen oxide gas ([0045]).

13. Regarding claim 12, Cheung et al. discloses that the control section is configured to execute all of the actions of the reaction chamber ([0057]).

14. Regarding claim 13, Cheung et al. discloses that the process temperature ranges from 250 to 400 °C ([0045]).

15. Regarding claim 21, Cheung et al. does not disclose that the reaction chamber is configured to accommodate multiple substrates. However, Srinivasan et al. discloses processing using a wafer boat (14, Fig. 1; col 3, lines 12-15) in which a plurality of target substrates are located at intervals in a vertical direction so as to process a plurality of wafers simultaneously. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was have the reaction chamber configured to accommodate a plurality of substrates, as taught by Srinivasan et al., so as to be able to process a plurality of wafers simultaneously.

***Double Patenting***

16. The claims of the instant application have been amended to differentiate themselves from the claims in copending application 10/478,935. Therefore, the provisional obviousness-type double patenting rejection of claims 1-2, 4, 7, 9, 12-13 in the previous office action has been withdrawn. The original claims 3, 5-6, 8, and 10-11 have been cancelled.

***Response to Arguments***

17. Applicant's arguments with respect to claims 1-2, 4, 7, 9, 12-21 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to Reema Patel whose telephone number is 571-270-1436. The examiner can normally be reached on M-F, 8:00-4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on 571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RSP  
10/13/07

  
MICHAEL LEBENTRITT  
SUPERVISORY PATENT EXAMINER